

of the bone just above its center. Under a general anesthetic the dislocation was reduced. Then the fracture was reduced and the arm bandaged to the side of the body. No splint was used. The roentgen rays taken immediately afterward showed the fragments to be in good position and the dislocation satisfactorily reduced. A roentgen ray taken seven weeks after the accident showed union in good position, and the patient left the hospital a few days later with practically normal power of movement in the right shoulder.

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## PEDIATRICS

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UNDER THE CHARGE OF

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**Duodenal Stenosis.**—CAUTLEY (*British Jour. Children's Dis.*, April-June, 1919) reports a case of a child who was brought to him for attacks of fever and vomiting. The first case in the literature was reported by Aubrey. Meckel quoted two instances. Schafer, Rokitsansky and Guyot reported cases. Billard mentioned Schafer's case in his book. Hirschsprung reviewed 16 cases, Silverman 24, Gastner 16, Schegel 29, Cordes 57, Kulyer 46, Spriggs 92, Cowell 92. In all, including the case added by this author, about 100 cases have been reported. The most characteristic group of cases includes those in which the defect is in the neighborhood of the papilla of Vater, the point of entrance of the common bile-duct into the duodenum. In another group are placed those of the duodenal-jejunal junction. The first group may be subdivided according to the site of the defect, being above, opposite or below the papilla. Mere narrowing or an annular constriction partially or entirely obliterating the lumen is rare; also the presence of a complete or a perforated diaphragm, due to reduplication of the wall and consisting of the usual coats of the gut and not merely hypertrophied valvulae conniventes is rare. Usually there is an upper segment ending in a cul-de-sac and connected with a lower segment by a short band, a thread-like band or mesentery only. The latter is a rare type in which there is a complete interruption of the gut. In stenosis the intervening portions coaeacting the upper and the lower portions are of varying lengths and degrees of constriction. Atresia may be erroneously diagnosed as stenosis because of an apparently direct communication between the two segments, the communication taking place indirectly by means of a branch of the duct which opens into the upper segment; a probe can be passed through this and the common duct into the lower segment. Vomiting, with the usual signs of obstruction, is the clinical picture. It may occur even if no food is given by mouth, the stomach becoming distended by normal secretions. Bilious vomiting occurs in about 90 per cent. of the cases if the obstruction is above the entrance of the common duct, and is probably due to an aberrant branch opening into

the dilated first part of the duodenum. Hematemesis is not uncommon. Naturally inanition, wasting and constipation are marked features. If food is taken and life is prolonged, as in some cases of stenosis, the stomach and first part of the duodenum become dilated and hypertrophied and there is a marked gastric peristalsis. The symptoms are practically the same as those of congenital hypertrophic stenosis of the pylorus unless bilious vomiting is also present. A dilated first part of the duodenum gives the sensation of a pyloric tumor, but it is neither so hard nor so well defined as in pyloric hypertrophy. It is perhaps needless to point out that no medical treatment is of real benefit and that possibly life may be saved in isolated cases by early surgical measures. In this case the above symptoms were present. Postmortem showed the stomach dilated and hypertrophied; the pylorus was widely dilated. The first part of the duodenum was widely dilated. The second part for a distance of an inch was extremely stenosed, admitting the passage of a probe, and the duct entered about the middle of the stenosed part.

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**Malnutrition in Children: A Study of the Examination of Nine Hundred Children under Eight Years of Age.**—GORDON and BARTLEY (*Arch. Ped.*, May, 1919). In the examination of 900 children under the age of eight years for nutrition, as shown by appearance, weight and height, it was found that the weight to height basis was the most reliable standard of judging nutrition. Next in value was the weight to age relationship and then the general appearance. These figures show a higher rate of malnutrition than others that have been published for children in large cities. The explanation for this may be that the children of this series were practically referred, because it was thought that, due to their home surroundings and their physical condition, they were in need of a vacation away from their usual environment. The classification of the poorly nourished lessens considerably the incidence of those requiring urgent medical care and treatment. The most critical period of a child's early life is between the ages of two and six years. The chief causative factors of malnutrition in this series were environment and disease from the viewpoint of previous history and the condition at the time of the examination. A previous attack of measles, pertussis and pneumonia were found to have a deleterious effect in the order named, on the subsequent life of the child. Scarlet fever, diphtheria and the other contagious diseases apparently had little effect on the general health after recovery. Conditions present at the time of examination which can be considered as causes of malnutrition were adenoids and hypertrophied tonsils, defective teeth, gastrointestinal and heart lesions, in the order named. Nationality had some effect on nutrition. The degree of nutrition present in a child should not be judged by one standard alone, but by a comparison of two or more.

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**The Organization and Methods of Contagious Disease Service.**—STOKES (*Penna. State Medical Jour.*, August, 1919) discusses at length this problem as developed in the planning of this type of hospital. In the management of the ideal institution the following rules were evolved from the methods of a number of the best contagious hospitals in this country: "(1) Attendants should change from street to short-

sleeved duty uniform on entering the hospital and make a reverse on leaving. (2) The infection should be limited to the quarters containing the patient. (3) The aseptic character of all corridors and passageways should be rigorously maintained. (4) Areas and objects as follows should be regarded as invariably infected: (a) the floor; (b) the patient; (c) all parts of the patient's room within reaching distance of his bed and in fact, in many hospitals, the entire room as high as a person can reach; (d) everything with which the patient or the above-mentioned objects come in contact. This includes bedding, utensils, food, discharges from the patient, etc. (5) A special gown covering the entire costume should be worn by attendants while they are within the infected area. (6) This gown should be removed, properly handled and disposed of in accordance with an exact technic before the attendant enters a clean area. (7) A cap covering the hair should be worn. (8) A face mask should be worn by persons while on duty in an infected area, especially while attending certain types of cases. (9) All attendants should rigorously cleanse the hands and forearms with soap and brush and running water before they leave the infected area. (10) Any article that has touched one of the above mentioned infected objects should be immediately treated as infected. (11) Every infected object should be efficiently sterilized as follows: Dishes should be boiled, garbage burned, dressings and infectious discharges on rags, etc., burned. Gowns, linens, and clothing should be sterilized either by immersion in sterilizing solution followed by steam laundrying, or by steam sterilization with or without subsequent laundrying. The body should be cleansed by washing with soap and water; little reliance is placed on disinfectants. When the patient is discharged mattresses and unwashable clothing and bedding should be sterilized by steam or formaldehyde in special steam sterilizers or rooms and subsequently exposed to air and sunlight. The bed should be washed with lysol and water, and exposed to air and sunlight. The room should be scrubbed (the floors and walls as high as can be reached) with soap and hot water. Radiators, chairs, tables, doors, door frames, door knobs, etc., should be included in this scrubbing. Fresh air and sunlight should be used in every possible way for the control of the infection. (12) The patient should be discharged in such a way as will prevent his infecting the corridors through which he is taken, or his carrying infectious material to the outside. (13) Every patient should be treated individually in a single room rather than collectively in wards. (14) Rooms containing a single type of disease should be grouped in one unit, under a single nurse or a group of nurses who do not care for any other type of disease, even though using an aseptic technic. (15) The privileges of visitors should be restricted. (16) Where patients are kept together in wards, even with the same disease, the beds should be separated by sheet curtains or by glass cubicle partitions. (17) Crowding either by having too many patients to the room or unit, or too many patients for each nurse should be absolutely prohibited. Crowding spells the complete breakdown of any system of contagious technic and subsequent cross-infection. (18) Every entering patient should be detained in "solitary" until the longest period of incubation of a contagious disease is passed (three weeks) before he is placed in any ward or in contact with any other person. This is to prevent crosses from patients incubating one disease

while entering with another. (19) Cultures from the nose and throat should be obtained from all persons entering the hospital as patients or staff, for the detection of carriers; the culture should be repeated on discharge. (20) All female infants should be examined for vaginitis (vaginal smear), and the inevitable rule made never to place two female infants in the same room or to allow dinpers, etc., to be washed by floor nurses."

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**Fat Metabolism of Infants and Young Children: III—Fat in the Stools of Children on a Mixed Diet.**—HOLT, COURTNEY and FALES (*Am. Jour. Dis. Children*, August, 1919) continue their studies on fat metabolism. This study presents observations on children whose diet contained a large proportion of mixed foods and gives the findings as to fat percentage and distribution in the stools of a number of children receiving a mixed diet and the fat retention of these children. The material examined consisted of 134 collections of the feces of 62 children from one to ten years of age. In the normal or constipated stools of older children whose diet consisted of milk alone or milk with bread and cereal the fat percentage of dried weight averaged 30.7, which is lower than the average found for similar stools of infants taking modifications of cow's milk. The soap percentage of total fat averaged 60.9, which was somewhat lower than that found in the stools of the infants. The normal and constipated stools of children on a mixed diet showed almost identical average values both for fat percentages of dried weights and for distribution of fat. The fat percentage of dried weight averaged 18.0 and 20.1, and the soap averaged, 45.1 and 47.9 per cent. of the total fat. These values were much lower than those found when the diet contained little or no solid food. In the acid abnormal stools of children on a mixed diet the fat averaged 15.1 of the dried weight. Both the fat percentage of dried weight and the soap percentage of total fat were much lower than in normal stools and the values for fatty acids and for neutral fat were higher. With rachitic children the fat percentage of dried weight averaged 34.7 in the alkaline stools and 24.6 in the acid stools. The values were higher than those found for corresponding types of stools for normal children. The proportions of soap, fatty acids and neutral fats were not significantly different from those of normal children. The stools of children suffering from chronic intestinal indigestion showed a much higher fat percentage of dried weight than those of normal children. The average for alkaline stools was 36.4 per cent. and for acid stools 35.3 per cent. The average percentage of neutral fat was lower in both alkaline and acid stools of those children than in the stools of normal children. The fatty acids were higher than normal, and much higher when the stools were acid. The average fat loss in the stools of normal children varied between 2.6 and 3.0 gm. in all the groups studied, being highest in the stools of children whose diet contained the smallest proportion of solid food and the largest proportion of milk. The normal children on mixed diet retained on the average about 94 per cent. of the fat intake, regardless of the type of stool. The average actual retention was about 38 gm. daily. The children with little or no solid food and a smaller fat intake showed a lower actual and a somewhat higher percentage retention than those on a general mixed diet. The rachitic children showed a slightly

Atropin sulphate, 1.2 mg., was then injected subcutaneously into the upper arm, and observations of the pulse-rate, blood-pressure and objective and subjective symptoms and signs were made every three minutes for nine minutes, then every five minutes for an hour or more if the effects of the drug were still present. The accompanying chart and Table I are illustrative of the method of recording results. In cases in which a simultaneous study of the gaseous metabolism was to be made the patients were fasted for twelve hours or more. Otherwise, they may or may not have fasted.

TABLE I.

Time.	Tremor.	Sweat.	Flush.	Pulsations.	Hands.	Miscellaneous.
8.46	+	Slight on palms	0	+	Warm	Quiet.
8.50	+	"	0	+	"	"
9.00	+	"	0	±	"	"
9.04		Atropin sulphate, 1.2 mgm. s. c.				
9.06	+	Slight on palms	0	±	"	"
9.08	+	"	"	"	"	"
9.10	+	"	"	"	"	"
9.20	+	"	"	"	"	"
9.25	+	"	"	"	"	"
0.30	+	Very slight	"	"	"	"
0.35	+	0	"	"	"	"
9.40	+	0	"	"	"	"
9.45	+	0	"	"	"	"
9.50	+	0	"	"	"	"
9.55	+	0	"	"	"	"
10.00	+	0	"	"	"	"
10.14	+	0	"	"	"	"
10.24	+	0	"	"	"	"
10.44	+	0	"	"	"	"

**METABOLISM.** The metabolism was determined by the Tissot method. The patient's expired air was collected in the spirometer by means of a half-mask and Tissot valves. It was analyzed with the portable Haldane gas-analysis apparatus. All volumes were collected and computed in the standard way. The nitrogen metabolism was not determined. Each period of a determination was of ten minutes' duration, and, unless it started within ten minutes of an injection, was made with a new placement of the mask. All patients were fasting twelve or more hours.

In cases in which patients were unfamiliar with the apparatus, two basal periods were carried out; but since most of the cases had had satisfactory determinations previously, but one basal period was run ordinarily.

**RESULTS.** We have injected 1.2 mg. atropin sulphate into 10 normal men and into 21 soldiers with "irritable heart," and noted the following effects: In the normal men, following the injection of the drug, there was an immediate drop in pulse-rate

depends on the local irritant of minute quantities of diphtheria toxin when injected intracutaneously. If antitoxin is absent, or present only in small amounts, insufficient for protection from diphtheria a positive reaction will appear in from twenty-four to forty-eight hours. The amount of toxin injected, as advised by Shiek, is  $\frac{1}{30}$  minimum lethal dose for the guinea-pig in 0.1 c.c. of normal saline solution. The author prefers  $\frac{1}{30}$  minimum lethal dose in 0.2 c.c. of normal saline solution. It is necessary to give it intracutaneously so that the toxin will remain in the dense tissue and have time to exert its irritant action. The Shiek reaction has been carried out for the last five years on all patients admitted to the scarlet fever pavilion of the Willard Parker Hospital. Only cases giving positive reaction were immunized against diphtheria; those giving a negative reaction were given no immunization, but were carefully observed. Though many of these became carriers of virulent diphtheria bacilli, no cases of clinical diphtheria developed. Those reacting to the test received injections of diphtheria antitoxin. It was found that the greatest susceptibility to diphtheria was between the first and fourth years. Toxin-antitoxin used as a vaccine has proved to be as effective an immunizing agent as typhoid vaccine. It is absolutely harmless. No reaction develops in infants while in older children and adults a moderate swelling of the arm may appear and lasts for one to three days. One injection gives immunity to 80 per cent. of those previously susceptible. Two injections give immunity to 90 per cent. and three injections to 97 per cent. Immunity conferred lasts for at least three years and probably much longer.

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## OBSTETRICS

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UNDER THE CHARGE OF

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**The Injection of Fluid into the Placenta to Aid in the Separation.**—FREY-BOLLI (*Jour. Correspondenz-Blatt, f. schweizer Aerzte*, April 19, 1919) has injected fluid into the placenta through the umbilical vein to make the placenta larger and heavier. To facilitate its separation, the fluid irrigates the wall of the uterus, causing it to contract and increasing its action in separating the placenta. The maternal stump of the cord should be wrapped in sterile gauze, as soon as it is divided, to maintain the sepsis, should it be necessary to inject fluid later. In 3201 deliveries, there were 53 cases of the retention of the placenta with hemorrhage. After injecting fluid, the placenta was spontaneously discharged in 46 per cent., and with like pressure in 41.5 per cent. In 7.5 per cent. placenta was expelled under general anesthesia, and in only 2 cases, 3.7 per cent., was manual delivery of the placenta required. The earlier the fluid is injected, the better, before the uterine muscle becomes exhausted. From 300 to 500 c.c. of saline and boiled water is used. If this produces no result, it is allowed to run out, and the same amount is again injected and, by repeating the proceeding, success follows.